

Appl. No. 10/664,585
Am't. Dated July 6, 2006
Reply to Office Action of April 6, 2006

Attorney Docket No. 81751.0066
Customer No. 26021

REMARKS

This application has been carefully reviewed in light of the Office Action dated April 6, 2006. Claims 1, 5-7, 9-11 and 21 remain in this application. Claims 1 and 21 are the independent Claims. Claims 1, 5, and 21 have been amended. It is believed that no new matter is involved in the amendments or arguments presented herein. Reconsideration and entrance of the amendment in the application are respectfully requested.

Art-Based Rejections

Claims 1, 6-7 and 9-11 and were rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 6,818,973 (Foster) in view of U.S. Patent No. 6,291,881 (Yang). Claim 21 was rejected under 35 U.S.C. § 103(a) over Foster in view of U.S. Patent No. 5,389,739 (Mills). Claim 5 was rejected under 35 U.S.C. § 103(a) over Foster and Yang and further in view of Mills. Applicant respectfully traverses the rejections and submits that the claims herein are patentable in light of the clarifying amendments above and the arguments below.

The Foster Reference

Foster is directed to a set of primary leads 72 and 72a and integrally connected to those ends of the primary leads 72a, of each set which are disposed closest to the die pad 64, is a connecting bar 74. In addition to the primary leads 72, 72a, the lead frame 58 includes a plurality of secondary horizontal leads 76 which are integrally connected to the connecting bars 74 and extend toward the die pad 64. (See Foster, Figs. 5 and 6; col. 6, lines 23-33)

Appl. No. 10/664,585
Am't. Dated July 6, 2006
Reply to Office Action of April 6, 2006

Attorney Docket No. 81751.0066
Customer No. 26021

The Mills Reference

Mills is directed to a lead frame that comprises integrally formed space remains 150, 152 extending axially outwardly from the first and second, service portions 101, 103 of the lead frame into contacting engagement with the planar surface portions 115, 113 of the cover member 114 and base member 112, respectively. The spacer means comprise bubble-up and bubble-down portions 150, 152 of the horizontal lead frame support arm members 138. (*See Mills, Fig. 6; col. 6, lines 53-65*)

The Yang Reference

Yang is directed to a lead frame whose pins 300 extends into the underside of the first silicon chip 302, via a horizontal end portion of pin 300. Next, adhesive material 314, for example, adhesive tape, is used to attach the backside of the first silicon chip 302 onto the lead frame pins 300. Bonding pads 306 on the front surface of the first silicon chip 302 are distributed around the peripheral region. (*See, Yaag, Fig. 3; col. 3, lines 53-59*)

The Claims are Patentable Over the Cited References

The present invention is generally related to a semiconductor package technology including manufacture of a semiconductor device.

As defined by independent Claim 1, as amended, a semiconductor device includes a die pad, a semiconductor chip having an electrode and bonded to the die pad, and an inner lead having an end section that is sloping upward and outward from the semiconductor chip. A surface of the die pad which the semiconductor chip is bonded faces upward. A wire electrically connects the inner lead to the electrode. A sealing section seals the inner lead, the semiconductor chip, and the wire. An outer lead extends outward from the sealing section. The wire is bonded to the

Appl. No. 10/664,585
Am. lt. Dated July 6, 2006
Reply to Office Action of April 6, 2006

Attorney Docket No. 81751.0066
Customer No. 26021

sloping end section of the inner lead. A portion of the inner lead is higher than the semiconductor chip.

The applied references do not disclose or suggest the above features of the present invention as defined by amended independent Claim 1. In particular the applied references do not disclose or suggest, "an inner lead having an end section that is sloping upward and outward from the semiconductor chip, wherein a surface of the die pad which the semiconductor chip is bonded faces upward", as required by amended independent Claim 1.

As discussed above Foster discloses an inner lead 72a and 76 having an end section that is horizontal (*See, Foster, Fig. 6*) and does not teach or suggest a "an inner lead having an end section that is sloping upward and outward from the semiconductor chip" as required by Claim 1.

As discussed above the ancillary Yang and Mills to remedy the deficiencies of Foster. For example, the Mills end section (138) and the Yang end section of pin 300 are both horizontal, as well.

Accordingly, amended independent Claim 1 is believed to be in condition for allowance and such allowance is respectfully requested.

Applicant respectfully submits that amended independent Claim 21 is allowable for the least the same reasons as those discussed in connection with amended independent Claim 1, and such allowance is respectfully requested.

The remaining claims depend either directly or indirectly from amended independent Claim 1, and recite additional features of the invention which are neither disclosed nor fairly suggested by the applied references and are therefore also believed to be in condition for allowance and such allowance is respectfully requested.

Appl. No. 10/664,585
Am. lt. Dated July 6, 2006
Reply to Office Action of April 6, 2006

Attorney Docket No. 81751.0066
Customer No. 26021

Conclusion

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

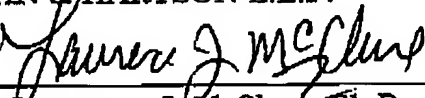
If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6809 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,

HOGAN & HARTSON L.L.P.

By: _____


Lawrence J. McClure, Ph.D.
Registration No. 44,228
Attorney for Applicant(s)

Date: July 6, 2006

500 South Grand Avenue, Suite 1900
Los Angeles, California 90071
Phone: 213-337-6700
Fax: 213-337-6701